

Claims

Sub A1

1. A laminated material (10) for food packaging which comprises at least a paper core layer (11), a quality keeping intermediate layer (12) laminated inside the paper core layer (11) and a heat sealable innermost layer (13),
characterized by that
the quality keeping intermediate layer comprises an extrusion coatable blend polymer containing 50 - 95% of polymer component A of condensation polymer (nylon-MXD6) of meta-xylene diamine and adipic acid or ethylene vinyl alcohol copolymer (EVOH), 5 - 50% of polymer component B of nylon -6 (PA-6), nylon -66 (PA-66), blend (PA-6/66) with nylon -6 and nylon -66 or polyethylene terephthalate (PET),
the quality keeping intermediate layer is extruded and laminated directly in a core layer, and
the innermost layer contains at least the linear low density polyethylene which has a narrow molecular weight distribution, and has the properties parameter of mean density of 0.910-0.925, 100 - 122 degrees C peak melting point, melt flow index of 5-20, swelling ratio (SR) of 1.4-1.6, and 5-50-micrometer layer thickness.

2. The laminated material for packaging according to Claim 1, wherein the quality keeping intermediate layer's blend polymer comprises the polymer component A of nylon-MXD6 and the polymer component B of nylon 6 (PA-6), nylon -66 (PA-66) or the blend (PA-6/66) with nylon 6 and nylon -66.

3. The laminated material for packaging according to Claim 2, wherein the blend polymer comprises 70 to 80 wt. % of nylon-MXD6, and 30 to 20 wt. % of nylon 6.

4. The laminated material for packaging according to Claim 1, wherein, directly or indirectly through an adhesive layer, two or more layers of the substantially same substance as the quality keeping intermediate layer and the innermost layer are laminated between the quality keeping intermediate layers laminated inside the paper core layer and the innermost layer.

Sub A2

5. The laminated material for packaging according to Claim 1, wherein the polymer component B is a molecule composite including polyamide of PA-6, PA-66 or PA-6/66 and fine phyllosilicate dispersed uniformly into the polyamide.

6. A method of manufacturing a laminated material for food packaging which comprises at least a paper core layer (11), a quality keeping intermediate layer (12) laminated inside the core layer (11) and a heat sealable innermost layer (13) characterized by

extrusion-coating directly, on the core layer, a blend polymer of polymer component A 50 - 95% of condensation polymer (nylon-MXD6) of meta-xylene diamine and adipic acid and, polymer component B 5-50% of nylon -6 (PA-6) or nylon -66 (PA-66) or a blend (PA-6/66) with nylon -6 and nylon -66 to laminate the quality keeping intermediate layer, and

coextuding the following sealable polymer with simultaneously above-mentioned blend polymer or extuding the following heat sealable polymer after the extrusion coating to laminate the heat sealable innermost layer (13):

the heat sealable polymer has at least the linear low density polyethylene which has a narrow molecular weight distribution, and has the properties parameter of mean density of 0.910-0.925, 100-122-degree C peak melting point, melt flow index of 5-20, swelling ratio (SR) of 1.4-1.6, and 5-35-micrometer layer thickness.

7. The method of manufacturing of laminated material for food packaging according to Claim 6, wherein the laminated material for food packaging has the core layer of paper or paper board, and the quality keeping intermediate layer of the blend polymer including the condensation polymer (nylon-MXD6) of meta-xylene diamine and adipic acid and nylon 6 (PA-6), and

the quality keeping intermediate layer is laminated to the surface of the core layer with the heat sealable innermost layer by coextrusion coating.

8. The method of manufacturing of laminated material for food packaging according to Claim 6, wherein the quality keeping intermediate layer is directly extrusion-coated to the core layer (11) of paper or paper board by co-extruding with the heat sealable polymer without any intermediate lamination nor any adhesive layer.

9. The method of manufacturing of laminated material for food packaging according to Claim 6, wherein an adhesive polymer is co-extruded between the layers at the co-extruding of the heat sealable innermost layer (13) and the quality keeping intermediate layer.

10. The method of manufacturing of the laminated material for food packaging according to Claim 6, wherein the surface of the core layer (11) is activated by the corona treatment or the flame treatment before extrusion-coating the quality keeping intermediate layer.

11. The method of manufacturing of the laminated material for food packaging according to Claim 6, wherein the contact surface of the extruded film is activated by the corona treatment or the flame treatment before extrusion-coating the quality keeping intermediate layer.